REMARKS

Applicant has carefully reviewed the Office Action mailed March 19, 2008 and offers the following remarks to accompany the above amendments.

Applicant wishes to thank the Examiner for indicating that claims 9, 19, and 24 would be allowable if rewritten in independent form. Applicant reserves the right to rewrite claims 9, 19, and 24 at a later time.

The drawings were objected to for not containing the element PBX as specified in claims 9, 19, and 24. Applicant has amended Figure 3 of the drawings in order to include the PBX as discussed in the Specification and recited in claims 9, 19, and 24. Support for the amendment to Figure 3 can be found throughout the Specification, including at least page 4, lines 4-10; page 6, line 29 through page 7, line 14; page 7, lines 28-30; page 8, lines 26-32; page 10, lines 19-28; and page 11, lines 17-23. No new matter has been added by the amendment to Figure 3. As a result of the amendment to Figure 3, the objection to the drawings should be withdrawn.

Claims 1-6, 10-18, and 20-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,700,895 B1 to Kroll (hereinafter "Kroll") in view of U.S. Patent No. 6,975,629 B2 to Welin (hereinafter "Welin"). To establish *prima facie* obviousness, the Patent Office must show where each and every element of the claim is taught or suggested in the combination of references. MPEP § 2143.03. If the Patent Office cannot establish obviousness, the claims are allowable.

The present invention is directed to an apparatus and method of optimizing voice quality on a network having end-point devices. The invention includes initializing default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per IP packet, and jitter buffer size. Further, performance parameters of the network are measured and if the connection to the network is below a desired level, the default parameters are adjusted. The adjustment of the default parameters may involve re-negotiating a CODEC connection, re-setting the packet size, and/or re-setting the jitter buffer size. Thus, one embodiment of the present invention is a three-phase approach to optimize a VoIP connection, by initializing default parameters, measuring or monitoring network performance, and dynamically intervening or adjusting the default parameters.

Independent claims 1, 14, and 20 recite that the initializing step includes setting default parameters for the end-point devices and performing one or more tests to determine the optimum

configuration for the end-point devices. Claims 1, 14, and 20 also recite that the measuring of performance parameters is of the network itself; that is, parameters external to the end-point devices are measured in order to evaluate whether the default parameters for the end-point devices are to be adjusted.

As an example, claim 1 recites a method of voice optimization in a packet switched network, comprising:

initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and performing one or more tests to determine an optimum configuration for the end-point devices;

measuring performance parameters of the network external to the end-point devices; and

evaluating whether the measured performance parameters signify that a connection to the network is below a desired level of operation and, if so, adjusting the default parameters for the end-point devices based on the evaluating.

Independent claims 14 and 20 recite similar limitations to those recited in claim 1.

The combination of Kroll and Welin does not teach each and every limitation of the claims. The Patent Office admits that Kroll does not teach initializing default parameters with respect to preferred CODEC and number of voice samples per packet, and cites to Welin, col. 18, lines 4-14 to correct this deficiency of Kroll (Office Action mailed March 19, 2008, p. 3). However, neither Kroll nor Welin teaches or suggests "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and **performing one or more tests to determine an optimum configuration for the end-point devices**." There is no mention in Kroll or Welin of an initializing step where default parameters for the end-point devices are set and then one or more tests are performed to determine the optimum configuration for the end-point devices.

In Kroll, there really is no "initializing" step performed at all. The process just starts with a particular buffer size (Kroll, Figure 7, step 210). Then the average queue time for a frame is calculated, and the expected arrival times are determined (Kroll, Fig. 7, steps 212 and 214). The frame loss rate is calculated by considering the frames that arrive late, frames that are lost in the network and frames that overflow due to an arriving burst of frames (Kroll, Fig. 7, steps 220-

280). The frame loss rate is then used to select the optimal size of the jitter buffer (Kroll, col. 2, lines 36-45). Thus, Kroll does not teach or suggest "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and **performing one or more tests to determine an optimum configuration for the end-point devices**." Kroll simply does not teach performing **tests** to determine an optimum configuration for the end-point devices. In addition, Kroll is only concerned with selecting the size of a jitter buffer and not the optimum configuration of end-point devices.

The Patent Office cites to column 7, lines 29-32 of Kroll as allegedly teaching the performing of one or more tests to determine an optimum configuration for the end-point devices as part of the claimed initializing step (Office Action mailed March 19, 2008, p. 3). Applicant respectfully disagrees. Column 7, lines 29-32 of Kroll reads: "Once the frame loss is computed for each virtual buffer, an optimal buffer size is then chosen that provides a desirable amount of jitter compensation. At step 212, the average queue time for a frame is calculated." Thus, Kroll merely discloses that once frame loss is computed for each virtual buffer, an optimal buffer size is chosen to provide a desirable amount of jitter compensation. There is no mention of initializing end-point devices where default parameters are set and then tests are performed in order to determine an optimum configuration for the end-point devices. The cited portion of Kroll does not disclose any tests. Likewise, the cited portion of Kroll does not disclose performing tests to determine an optimum configuration after default parameters are set as part of the initializing step, as recited by the claimed invention. Accordingly, Kroll does not teach or suggest "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and **performing one or more tests to determine an optimum configuration for the end-point devices**," as recited by the claimed invention. Welin also does not disclose this element. Therefore, the combination of Kroll and Welin does not teach or suggest each and every element of the claimed invention, and the claims are patentable.

Further, Kroll does not teach "performing one or more tests to determine an optimum configuration for the end-point devices," and then "measuring the performance parameters of the network **external to the end-point devices**" in order to see if any adjusting of the initial default

parameters is necessary, as claimed by the present invention. As mentioned above, Kroll does not perform tests in order to determine an optimum configuration for the end-point devices. Moreover, Kroll does not measure performance parameters of the network external to the end-point devices. Applicant previously had amended the claims to recite that the measured performance parameters are external to the end-point devices (see Response filed November 28, 2007). In the March 19, 2008 Office Action, the Patent Office did not state specifically where in the cited references the added limitation of the measured performance parameters being **external to the end-point devices** was taught. The Patent Office just repeated its previous assertion that Kroll taught this limitation at steps 212-280 (Office Action mailed March 19, 2008, p. 3).

However, Kroll does not teach or suggest measuring performance parameters of the network external to the end-point devices. Instead, Kroll measures the frame loss rate based on past frame loss for a particular buffer size (Kroll, col. 3, line 44 through col. 4, line 5). Thus, what Kroll is retrieving and using to select the size of the jitter buffer (past frame loss based on past packet arrival statistics) is different than what the present invention is using (the measurement of performance parameters of the network external to the end-point devices) to determine if the default parameters for the end-point devices need adjusting. Kroll discloses choosing a buffer size that approximates a desired frame loss rate and a desirable amount of jitter compensation based on past frame loss based on past packet arrival statistics (*Ibid.*; see also Kroll, column 7, line 10 through column 9, line 36). Thus, Kroll does not base any decisions on measuring performance parameters of the network external to the end-point devices. Accordingly, Kroll does not teach or suggest "measuring performance parameters of the network external to the end-point devices," as recited by the claimed invention. Welin also does not disclose this element. Therefore, the combination of Kroll and Welin does not teach or suggest each and every element of the claimed invention, and the claims are patentable.

As a result of the above deficiencies of Kroll, Kroll also does not teach or suggest "evaluating whether the measured performance parameters signify that a connection to the network is below a desired level of operation and, if so, adjusting the default parameters for the end-point devices based on the evaluating," as claimed in the present invention. Kroll uses the past frame loss based on past packet arrival statistics to determine the size of the jitter buffer. Kroll looks to see if a particular buffer size yields a desired frame loss rate (Kroll, Figure 6, step 194). Kroll thus does not use the measurement of performance parameters of the network

external to the end-point devices to evaluate whether **a connection to the network** is below a desired level, as claimed in the present invention

Thus, as set forth above, Kroll does not teach or suggest "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and performing one or more tests to determine an optimum configuration for the end-point devices," "measuring performance parameters of the network external to the end-point devices," and "evaluating whether the measured performance parameters signify that a connection to the network is below a desired level of operation and, if so, adjusting the default parameters for the end-point devices based on the evaluating," as claimed in the present invention.

Welin does not cure the deficiencies of Kroll. Welin was cited merely for its teaching of selecting coders at run time (Welin, col. 18, lines 4-14). Welin is directed to a method of processing first and second record packets of real-time information, the method including computing for each packet a deadline interval and ordering processing of the packets according to the respective deadline intervals. There is no teaching or suggestion in Welin of "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and **performing one or more tests to determine an optimum configuration for the end-point devices**," "measuring performance parameters of the network external to the end-point devices," and "evaluating whether the measured performance parameters signify that a connection to the network is below a desired level of operation and, if so, adjusting the default parameters for the end-point devices based on the evaluating," as recited in claim 1.

For the reasons stated above, the combination of Kroll and Welin does not teach the invention as presently claimed. Therefore, claim 1 is allowable over Kroll and Welin. Claims 2-6 and 10-13 depend from claim 1 and are patentable for at least the same reasons set forth above with respect to claim 1.

Independent claims 14 and 20 as amended include limitations that are the same or similar to those in claim 1 and are thus patentable for at least the same reasons set forth above with

respect to claim 1. Claims 15-18 and 21-23 depend from claims 14 and 20, respectively, and are allowable over Kroll and Welin for at least the same reasons.

Claims 7 and 8 were rejected under rejected under 35 U.S.C. § 103(a) as being unpatentable over Kroll in view of Welin and further in view of U.S. Patent No. 7,207,980 B1 to Shah (hereinafter "Shah"). Applicant respectfully traverses. The standards for obviousness are set forth above.

Claims 7 and 8 depend indirectly from claim 1 and contain all of the limitations of claim 1. Thus, claims 7 and 8 are patentable for at least the same reasons set forth above with respect to claim 1. As discussed above, the combination of Kroll and Welin does not teach or suggest "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and **performing one or more tests to determine an optimum configuration for the end-point devices**," "measuring performance parameters of the network **external to the end-point devices**," and "evaluating whether the measured performance parameters signify that a connection to the network is below a desired level of operation and, if so, adjusting the default parameters for the end-point devices based on the evaluating," as recited in the claimed invention. Shah does not cure the deficiencies of Kroll and Welin in this regard. Shah is cited merely for its alleged teaching that adjustments may be manually initiated by a user (Office Action mailed March 19, 2008, p. 5). Shah does not disclose "initializing end-point devices on a network, wherein the initializing comprises setting default parameters for the end-point devices with respect to choice of preferred CODEC, number of voice samples per packet, and jitter buffer size, and **performing one or more tests to determine an optimum configuration for the end-point devices**," "measuring performance parameters of the network external to the end-point devices," and "evaluating whether the measured performance parameters signify that a connection to the network is below a desired level of operation and, if so, adjusting the default parameters for the end-point devices based on the evaluating," as recited by the claimed invention. Accordingly, claims 7 and 8 are patentable over the proposed combination of Kroll, Welin, and Shah.

The present application is now in condition for allowance and such action is respectfully requested. The Examiner is encouraged to contact Applicant's representative regarding any remaining issues in an effort to expedite allowance and issuance of the present application.

Respectfully submitted,
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